

93 5. (Amended) The exposure device of claim 1 wherein the light beam is a substantially collimated beam that has a cross sectional area of from about 5 cm² to 30,000 cm².

94 10. (Amended) The exposure device of claim 1 wherein the means for rotating the frame of the shutter comprises:

pivot means for pivoting the frame such that the plurality of blades rotates about an axis that is normal to the substantially planar surfaces of the plurality of blades; and

drive means for moving the frame in a controlled manner (i) from an open position that allows the energy beam to travel through the aperture to a closed position that intercepts the energy beam and (ii) from the closed position to the open position.

14. (Amended) A method of patterning a substrate through controlled exposure of the substrate in a vacuum system which comprises the steps of:

generating radiation comprising an energy beam;

controlling the exposure with an exposure device that comprises a shutter that includes (i) a frame defining an aperture toward which the energy beam is directed and (ii) a plurality of blades that are secured to the frame; and

rotating the frame of the shutter to cause the plurality of blades to intercept or allow the energy beam to travel through the aperture wherein the positions of the individual blades remain fixed relative to each other.

96 16. (Amended) The method of claim 14 wherein the exposure device includes means for rotating the frame of the shutter that includes a solenoid that is encased in a vacuum compatible housing that entraps contaminants from the solenoid.

97 23. (Amended) The method of claim 14 wherein the exposure device includes means for rotating the frame of the shutter that comprises:

pivot means for pivoting the frame such that the plurality of blades rotates about an axis that is normal to the substantially planar surfaces of the plurality of blades; and

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drive means to move the frame in a controlled manner (i) from an open position that allows the energy beam to travel through the aperture and a closed position that intercepts the energy beam and (ii) from the closed position to the open position.
